SN 09/862,855
Docket No. S-94,652
In Response to Office Action dated 05/16/2006

REMARKS

1. STATUS INFORMATION:

Claims 1-21 are pending. Claims 5, 17 and 20 have been withdrawn from consideration. Original claims 2-4, 6, 7, 9-16, 18, 19 and 21, and amended claims 1 and 8, have been examined. Applicants acknowledge that claims 1 and 8 were amended by Preliminary Amendment filed November 13, 2002, and thank the Examiner for making this determination.

2. CURRENTLY AMENDED CLAIMS

Claims 2, 4 and 21 have been amended hereby. In each case, only simple clarifying amendments were made. No new matter has been added.

3. REJECTIONS UNDER 35 USC 102(b), CHEHAB ET AL.

Claims 2, 8-16 and 19 were rejected under 35 USC 102(b) as being anticipated by Chehab et al., 1989.

There is a fundamental difference between the method described in Chehab et al. and the claimed invention. The method of Chehab et al. requires and is based on the amplification of target sequences primed with fluorescent oligonucleotide primers. Chehab et al. detect amplified DNA that has incorporated the fluorescent labels of the amplification primers. The method of the claimed invention, on the other hand, does not use or require target amplification or detection of amplified DNA, but rather directly detects pairs of fluorescent hybridization probes bound to individual, unamplified target fragments.

Chehab et al. state that the color complementation assay described therein *"is based on the simultaneous amplification of two or more DNA segments with fluorescent oligonucleotide primers such that the generation of a color, or combination of colors, can be visualized and used for diagnosis" (Abstract)*. The assay of Chehab et al. is a *PCR-based color complementation assay (page 9178, second column, 1st full paragraph)*.

The claimed invention overcomes the limitations of a PCR-based strategy by achieving single molecule fluorescence detection. Referring to claim 2, the steps of forming a dilute solution containing the labeled DNA or RNA segments, illuminating *each* labeled DNA or RNA segment with light beams, and detecting the presence or absence of *each* luminescent hybridization probe on *each* DNA or RNA segment, are not disclosed or suggested in Chehab et al. The method of the invention utilizes hybridization probes (not PCR primers) to label (not amplify) individual DNA or RNA segments, and then detects the presence of the luminescent probes in each segment.

Chehab et al. do not teach forming a dilute solution of the labeled DNA or RNA segments – the referenced paragraph in Chehab et al. teaches dilution of the amplified DNA in order to remove unincorporated primers. According to the method of Chehab et al., immediately following the removal of unincorporated primers, using a combination of dilution and Centricon-100 microfiltration, the amplified DNA retained on top of the filter is recovered and visualized on a transilluminator (page 9179, second paragraph). Therefore, Chehab et al. visualize *amplified* DNA, not single molecules labeled with hybridization probes as in the method of the invention.

The requirement for PCR amplification limits the application of the method of Chehab et al. to haplotyping. For example, if two SNPs on the target fragment are separated by more than several thousand base pairs (or perhaps even less), then the PCR-based approach of Chehab et al. will likely fail due to the limitations on the processivity of the polymerase used for the PCR amplification. The method of the invention is not based on PCR, and is not limited by the distance between SNPs on a target fragment.

Accordingly, the method of the invention is clearly distinguishable from the teaching of Chehab et al., as none of the claimed methods utilize PCR amplification (or any other type of amplification). All of the claimed methods directly detect single molecules labeled with fluorescent hybridization probes. Chehab et al. do not teach the claimed invention, and therefore cannot anticipate the claimed invention. Applicants kindly request reconsideration and withdrawal of the rejections in view of the foregoing remarks.

4. REJECTIONS UNDER 35 USC 102(e), LANDERS

Claims 1-4, 8-16, 18 and 19 were rejected under 35 USC 102(e) as being anticipated by Landers, US Patent No. 6,844,154.

The Landers patent issued from US Application No. 09/823,257, filed March 20, 2001. The subject application claims priority to US Provisional Application 60/206,512, filed May 22, 2000. Accordingly, if the effective filing date of Landers for 102(e) purposes is March 20, 2001, the rejection would be in error. Although Landers claims priority to Provisional Application No. 60/194,425, filed April 4, 2000, the Office has not indicated that the effective filing date of Landers is April 4, 2000 for purposes of this 102(e) rejection, nor provided applicants with a copy of Landers' priority application. Therefore, applicants do not have information sufficient to determine whether the cited disclosures in the Landers patent are contained in Landers' priority application.

Nevertheless, in an effort to expedite the prosecution of this case, applicants submit herewith the DECLARATION OF PETER M. GOODWIN, JAMES H. WERNER, RICHARD A. KELLER AND HONG CAI UNDER 37 CFR 1.131 (Rule 131 Declaration) in order to swear behind Landers' potential effective filing date of March 20, 2001. Applicants respectfully submit that the Rule 131 Declaration establishes priority of invention, as required under Rule 131(b), by showing conception of the invention (as evidenced by the exhibited March 13, 2000 invention disclosure submitted to applicants'

patent counsel) prior to the potential effective filing date of the Landers reference (April 4, 2000), coupled with due diligence from prior to Landers' potential effective filing date to the filing date of the provisional application (filed some two months later on May 22, 2000).

The undersigned submits that the preparation and filing of applicants' provisional application only 2 months following the submission of the corresponding invention disclosure was quite timely and establishes reasonable attorney diligence in the preparation of the provisional application. The attorney who prepared the provisional application, Ray Wilson, now retired, was at the time the Group Leader of the Intellectual Property Law Group within the Legal Counsel's Office at the Los Alamos National Laboratory. As such, Mr. Wilson's responsibilities included management of the IP lawyers in his group, as well as the preparation and prosecution of a docket of multiple patent applications, among his various other responsibilities.

Therefore, applicants kindly request reconsideration and withdrawal of the 102(e) rejections in view of the evidence presented in the Rule 131 Declaration.

5. REJECTIONS UNDER 35 USC 103(a), LANDERS

Claims 6, 7 and 21 were rejected under 35 USC 103(a) as being unpatentable over the Landers patent (as above) and Nie et al., 1994.

Applicants refer to and reiterate the remarks presented in paragraph 4, above, in connection with this rejection, and submit that the evidence presented in the Rule 131 Declaration is sufficient to overcome this rejection as well. Accordingly, applicants kindly request reconsideration and withdrawal of the 103(a) rejections in view of the evidence now of record.

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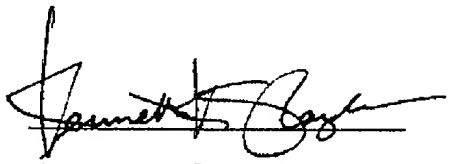
Respectfully submitted,



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